Therefore, I Claim

1. An electromagnetic intrusion detection apparatus comprising:

a) a transmitter which produces a radio frequency output;

b) a radio frequency antenna which receives the output from the transmitter and radiates an electromagnetic field into surrounding free space, and which responds to the presence of an object and/or environmental conditions which by absorption and/or reflection would modify the electromagnetic field and thus modify the power consumption of the transmitter;

c) a monitoring apparatus which monitors power consumption of the transmitter and identifies modifications in said power consumption, said monitoring apparatus being capable of identifying expected modifications that occur in expected surrounding environmental conditions and differentiating such expected modifications in power consumption in expected environmental conditions from modifications in power consumption characteristic of intrusions and/or expected surrounding environmental conditions;

d) said monitoring and analyzing apparatus providing a signal output to indicate an unexpected environmental condition and/or intrusion.

2. The apparatus as recited in claim 1, wherein said monitoring apparatus monitors rate of change of said power consumption, amplitude of power consumption and/or a combination of rate of change and magnitude of power consumption to identify modifications outside of said expected modifications.

3. The apparatus as recited in claim 1, wherein:

a) said transmitter produces said output as pulses, said pulses having either a constant frequency or varying frequencies;

b) an intrusion warning device or devices selected from a group comprising an audible output device, a visual output device, an electromagnetic output device, an electrical output device, and combinations thereof;

c) said transmitter having its output being connected to a ground connection, with power dissipated to said ground connection varying at least partially due to environmental conditions, and said monitoring apparatus receiving input of such variations related to environmental conditions at said ground connection;

d) said monitoring apparatus comprising a microcontroller;

e) said apparatus comprising an optional radio frequency receiver for arming and disarming said apparatus, and;

f) said detection apparatus further comprising a second ground connection to an electromagnetically permeable metallic member associated with which said apparatus is associated.

4. A method of electromagnetic detection of intrusion comprising:

a) operating a transmitter to produce a radio frequency output to an antenna to cause said antenna to radiate an electromagnetic field into surrounding free space, and to respond to presence of an object and/or environmental conditions which by absorption and/or reflection would modify the electromagnetic field and thus modify the power consumption of the transmitter;

b) monitoring power consumption of the transmitter and identifying modifications in said power consumption;

c) identifying expected modifications that occur in expected surrounding environmental conditions;

d) differentiating such expected modifications in power consumption in expected environmental conditions from modifications in power consumption characteristic of unexpected intrusions into said electromagnetic field and/or modifications in the surrounding environmental conditions not characteristic of the expected surrounding environmental conditions;

e) providing a signal output to indicate an unwanted intrusion or an unexpected occurrence or change in said surrounding environmental conditions.

5. The method as recited in claim 4 wherein there is a metal structure, which is selected from a group comprising construction equipment, other mobile equipment, metal buildings, metal components of buildings or other structures and/or metal fences, and said method is accomplished in association with said metal structure.